Complete Summary

GUIDELINE TITLE

Determining the volume of residual urine by ultrasonography.

BIBLIOGRAPHIC SOURCE(S)

Finnish Medical Society Duodecim. Determining the volume of residual urine by ultrasonography. In: EBM Guidelines. Evidence-Based Medicine [Internet]. Helsinki, Finland: Wiley Interscience. John Wiley & Sons; 2008 Jul 23 [Various].

GUIDELINE STATUS

This is the current release of the guideline.

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COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Urinary incontinence
- Urinary symptoms
- Urinary tract infection
- A palpable mass in the lower abdomen
- Increased serum creatinine

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Family Practice
Geriatrics
Internal Medicine
Nephrology
Urology

INTENDED USERS

Health Care Providers
Physicians

GUIDELINE OBJECTIVE(S)

Evidence-Based Medicine Guidelines collect, summarize, and update the core clinical knowledge essential in general practice. The guidelines also describe the scientific evidence underlying the given treatment recommendations.

TARGET POPULATION

- Individuals with urinary incontinence
- Elderly men with urinary symptoms
- Men with urinary tract infections
- Individuals with a palpable mass in the lower abdomen
- Individuals with increased serum creatinine

INTERVENTIONS AND PRACTICES CONSIDERED

Determination of the volume of residual urine by ultrasonography of the urinary bladder

MAJOR OUTCOMES CONSIDERED

Inter-observer reliability and validity of ultrasonic estimation of bladder volume

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The evidence reviewed was collected from the Cochrane database of systematic reviews and the database of abstracts of reviews of effectiveness (DARE). In addition, the Cochrane Library and medical journals were searched specifically for original publications.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Classification of the Quality of Evidence

Code	Quality of Evidence	Definition
A	**High**	Further research is very unlikely to change our confidence in the estimate of effect. • Several high-quality studies with consistent results • In special cases: one large, high-quality multi-centre trial
B	**Moderate**	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate. • One high-quality study • Several studies with some limitations
C	**Low**	Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate. • One or more studies with severe limitations
D	**Very Low**	Any estimate of effect is very uncertain. • Expert opinion • No direct research evidence • One or more studies with very severe limitations

GRADE (Grading of Recommendations Assessment, Development and Evaluation) Working Group 2007 (modified by the EBM Guidelines Editorial Team).

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of evidence [A-D] supporting the recommendations are defined at the end of the "Major Recommendations" field.

Principles

- Any doctor can determine the volume of residual urine after brief education (See Video 1 in the original guideline document).

Indications

- Urinary incontinence (to rule out overflow)
- Urinary symptoms in elderly men
- Urinary tract infection in the male
- A palpable mass in the lower abdomen

- Increased serum creatinine (to rule out obstruction)

Techniques

- The patient voids.
- Keep the ultrasonography probe in a transverse position and find a view which shows the bladder at maximum size. Freeze the view and measure the horizontal (a) and vertical (b) dimensions of the bladder.
- Move the probe to a longitudinal position, find the maximum longitudinal dimension (c) of the bladder and measure it.
- The (minimum estimate of) residual urine volume = 0.6 x a x b x c (Nwosu et al., 1998) [**B**]. If the dimensions are given in cm, the result is in mL. (See Pictures 1 and 2 in the original guideline document).
    - A volume exceeding 100 mL is abnormal, and a volume exceeding 200 mL is usually an indication of treatment.
- The volume of the prostate can be measured by using the same formula (See Pictures 3 and 4 in the original guideline document).

Examining the Full Bladder

- If you intend to determine the position and depth of the bladder before bladder puncture or percutaneous cystostomy, do not ask the patient to void, but perform ultrasonography with a full bladder.

Definitions:

Classification of the Quality of Evidence

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Code	Quality of Evidence	Definition
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CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Concise summaries of scientific evidence attached to the individual guidelines are the unique feature of the Evidence-Based Medicine Guidelines. The evidence summaries allow the clinician to judge how well-founded the treatment recommendations are. The type of supporting evidence is identified and graded for select recommendations (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate determination of the volume of residual urine by ultrasonography

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Estimation of bladder volume by ultrasonography is both reliable and valid for clinical purposes, but the most appropriate formula for calculation cannot be determined on the basis of systematic review.
- The poor quality of the study designs and the potential elements of bias make it impossible to recommend the most valid formula for estimating bladder volume. The variation in bladder shape at different volumes would suggest that a single formula may be inappropriate at different bladder volumes.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Resources

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 May 9 (revised 2008 Jul 23)

GUIDELINE DEVELOPER(S)

Finnish Medical Society Duodecim - Professional Association

SOURCE(S) OF FUNDING

Finnish Medical Society Duodecim

GUIDELINE COMMITTEE

Editorial Team of EBM Guidelines

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Primary Author: Editors

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

This guideline is included in "EBM Guidelines. Evidence-Based Medicine" available from Duodecim Medical Publications, Ltd, PO Box 713, 00101 Helsinki, Finland; e-mail: info@ebm-guidelines.com; Web site: www.ebm-guidelines.com.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Residual urine volume (ultrasonography). Video 1.

Electronic copies available to subscribers from Finnish Medical Society Duodecim Web site.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on August 28, 2001. The information was verified by the guideline developer as of October 26, 2001. This summary was

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